

REMARKS

In the Office Action dated August 25, 2004, Claims 1 and 2 are pending. The Examiner rejected claims 1 and 2. In addition, portions of the Abstract and disclosure were objected to due to informalities. Claims 3 through 7 are new.

Independent claim 3 is fully supported by at least paragraph [0012] (lines 8-10) as well as Figures 2-4. The remainder of the new claims is supported by the Specification and Figures.

The Abstract and disclosure have been amended as per the Examiner's suggestions to correct the informalities. The abstract and disclosure are now believed to comply with all requirements. No new matter has been entered.

A minor formal change was made to claim 1 for the sake of readability in the recitation of the valve port and its relation to the low pressure chamber and the high pressure chamber. This change to the language does not further limit the claim.

Claims 1 and 2 – 35 U.S.C. §103(a) in view of Barnes

Claims 1 and 2 were rejected under 35 U.S.C. §103(a) as being unpatentable over the Applicant's admitted prior art in view of Barnes (U.S. Patent 3,877,445). The Examiner states "Barnes teaches a hydraulic tappet ball-shaped valve metering element 48 with a specific gravity less than that of the oil in the chamber 20 such as plastic." Barnes teaches a specific gravity lighter than the surrounding oil in order to bias the metering element against the cap 18 (Col. 1, lines 54-60). Independent claim 1 and dependent claim 4 have been amended to exclude this range. Therefore, all of the elements of claims 1, 2, and 4 are not taught by the references and reconsideration is respectfully requested.

Claim 2–35 U.S.C. §103(a) in view of Barnes and Taniguchi et al.

Claim 2 was rejected under 35 U.S.C. §103(a) as being unpatentable over the Applicant's admitted prior art in view of Barnes (U.S. Patent 3,877,445) and further in view of Taniguchi et al. (U.S. Patent 5,185,923). Claim 2 is dependent upon amended claim 1. Claim 1 has been amended to exclude the range of specific gravity taught by Barnes. Reconsideration is requested upon at least this ground.

In addition, the Examiner states “Taniguchi et al. teaches a tappet 400 containing a semi-spherical ceramic portion made of silicon nitride.” Taniguchi et al. teaches the use of a silicon nitride material for frictionally sliding surfaces. The material is chosen for “friction-resistant properties” (Col. 1, lines 20-23). However, at no point in Taniguchi et al. nor any of the other references cited in this Office Action, is the material applied in an application which is required to seal, such as in the valve element of the current invention. A person skilled in the art would not necessarily select a material shown to be frictionally resistant unless there was also some teaching of the ability to seal as well. In view of the absence of this additional teaching, the Applicant respectfully requests reconsideration of the rejection of Claim 2.

Claim 3

Independent claim 3 recites that the valve seat face is an arcuate face. This feature is neither disclosed nor suggested by any of Applicants' admitted prior art, Barnes or Taniguchi. Accordingly, it is respectfully submitted that independent claim 3, as well as dependent claims 4-7 depending therefrom, patentably distinguish over the prior art cited by the Examiner.

Conclusion

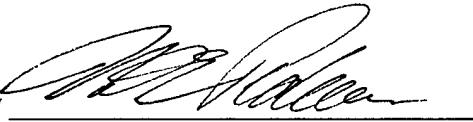
Due to the lack of complete identity between the references and the current invention for at least the reasons given in this response, the Applicant respectfully requests that the Examiner withdraw the rejection based upon 35 U.S.C. §103(a) and the application be immediately placed in a condition for allowance. Since Claim 2 depends upon Claim 1, allowance of Claim 1 would result in the allowance of Claim 2. New Claims 3 – 7 are fully supported by the Specification and are believed to be novel as compared to the cited prior art.

In view of the above amendments and following remarks, reconsideration of the rejections contained within the Office Action of August 25, 2004 is respectfully requested.

Respectfully submitted,

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November 23, 2004